AMENDMENTS TO THE CLAIMS

The claims in this listing will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) An adjustment method for binocular magnifying glasses having a pair of magnifying glasses for right and left eyes, each of the pair of magnifying glasses having a magnifying optical system and a deflector deflecting an optical path of the magnifying optical system, each magnifying optical system including an objective optical system and an eyepiece optical system, an optical axis of the objective optical system being inclined with respect to an optical axis of the eyepiece optical system, the adjustment method comprising:

rotating the pair of magnifying glasses in directions opposite to each other using γ-rotation; and

correcting inclination of an image, caused by the γ-rotation, by rotating the pair of magnifying glasses in directions opposite to each other using β-rotation,

where γ-rotation is rotation about each of axes X_L and X_R, which respectively correspond to visual axes of the left and right eyes when an object distance is infinite in a condition of a primary position, and where β-rotation is rotation about each of axis Y_L and Y_R, which are respectively perpendicular to the axes X_L and X_R and are also perpendicular to a z-axis which perpendicularly intersects with the axis X_L at a position of the deflector for the left eye and the axis X_R at a position of the deflector for the right eye.

2. (Previously Presented) The adjustment method according to claim 1,

wherein, when an angle of the γ-rotation for each of the right and left eyes is represented by $\gamma°$, and an angle of the β-rotation for each of the right and left eyes is represented by $\beta°$, and wherein the following relationship is satisfied:

$-0.50° < \varepsilon(\gamma)+\varepsilon(\beta) < 0.50°$

where $\varepsilon(\gamma)=\gamma-\cos^{-1}\{1-\sin^2(90-\theta)\times(1-\cos\gamma)\}$,

$\varepsilon(\beta)=\cos^{-1}\{1-\sin^2\theta\times(1-\cos\beta)\}$, and

θ is a deflection angle (unit: degree) that the deflector deflects the optical path, except in a case where $\varepsilon(\gamma)=\varepsilon(\beta)=0$.

3. (Previously Presented) The adjustment method according to claim 1,

wherein, when an angle of the γ-rotation for each of the right and left eyes is represented by $\gamma°$, and an angle of the β-rotation for each of the right and left eyes is represented by $\beta°$, the following relationship is satisfied:

$-0.33° < \varepsilon(\gamma)+\varepsilon(\beta) < 0.33°$

where $\varepsilon(\gamma)=\gamma-\cos^{-1}\{1-\sin^2(90-\theta)\times(1-\cos\gamma)\}$,

$\varepsilon(\beta)=\cos^{-1}\{1-\sin^2\theta\times(1-\cos\beta)\}$, and

θ is a deflection angle (unit: degree) that the deflector deflects the optical path, except in a case where $\varepsilon(\gamma)=\varepsilon(\beta)=0$.

4. (Previously Presented) The adjustment method according to claim 1,

wherein, when an angle of the γ-rotation for each of the right and left eyes is represented by $\gamma°$, and an angle of the β-rotation for each of the right and left eyes is represented by $\beta°$, the following relationship is satisfied:

$28.8\text{mm} < Z\gamma+Z\beta+\Delta P/2 < 35.2\text{mm}$

where $Z\gamma = WD \times \sin\theta \times \tan\gamma$,

$Z\beta = WD \times \cos\theta \times \tan(\beta - \beta/m)$,

$\Delta P = 2\{WD \times \cos\theta \times \tan(\beta(Z)/m) + 25 \times \tan\beta(Z)\}$,

WD represents an object distance (mm),

m represents an magnification of each magnifying glass, and

$\beta(Z)$ represents 1/2 of an angle of convergence.

5. (Currently Amended) Binocular magnifying glasses comprising:

a pair of magnifying glasses, one for each of a right and a left eye, each of said pair of magnifying glasses comprising:

a magnifying optical system, <u>each magnifying optical system including an objective optical system and an eyepiece optical system, an optical axis of the objective optical system being inclined with respect to an optical axis of the eyepiece optical system</u> ; and

a deflector that deflects an optical path of said magnifying optical system,

wherein the binocular magnifying glasses are configured for adjustment by:

rotating the pair of magnifying glasses in directions opposite to each other using γ-rotation; and

correcting inclination of an image, caused by the γ-rotation, by rotating the pair of magnifying glasses in directions opposite to each other using β-rotation,

where γ-rotation is rotation about each of axes X_L and X_R, which respectively correspond to visual axes of the left and right eyes when an object distance is infinite in a condition of a primary position, and β-rotation is rotation about each of axis Y_L and Y_R, which are respectively perpendicular to the axes X_L and X_R and are also perpendicular

to a z-axis which perpendicularly intersects with the axis X_L at a position of the deflector for the left eye and with the axis X_R at a position of the deflector for the right eye.

6. (Previously Presented) The binocular magnifying glasses according to claim 5,

wherein, when an angle of the γ-rotation for each of the right and left eyes is represented by $\gamma°$, and an angle of the β-rotation for each of the right and left eyes is represented by $\beta°$, the following relationship is satisfied:

$-0.50° < \varepsilon(\gamma)+\varepsilon(\beta) < 0.50°$

Where$\varepsilon(\gamma)=\gamma-\cos^{-1}\{1-\sin^2(90-\theta)\times(1-\cos\gamma)\}$,

$\varepsilon(\beta)=\cos^{-1}\{1-\sin^2\theta\times(1-\cos\beta)\}$, and

θ is a deflection angle (unit: degree) that the deflector deflects the optical path, except in a case where $\varepsilon(\gamma)=\varepsilon(\beta)=0$.

7. (Previously Presented) The binocular magnifying glasses according to claim 5,

wherein, when an angle of the γ-rotation for each of the right and left eyes is represented by $\gamma°$, and an angle of the β-rotation for each of the right and left eyes is represented by $\beta°$, the following relationship is satisfied:

$-0.33° < \varepsilon(\gamma)+\varepsilon(\beta) < 0.33°$

where $\varepsilon(\gamma)=\gamma-\cos^{-1}\{1-\sin^2(90-\theta)\times(1-\cos\gamma)\}$,

$\varepsilon(\beta)=\cos^{-1}\{1-\sin^2\theta\times(1-\cos\beta)\}$, and

θ is a deflection angle (unit: degree) that the deflector deflects the optical path, except in a case where $\varepsilon(\gamma)=\varepsilon(\beta)=0$.

8. (Previously Presented) The binocular magnifying glasses according to claim 5,

wherein when an angle of the γ-rotation for each of the right and left eyes is represented by $\gamma°$, and an angle of the β-rotation for each of the right and left eyes is represented by $\beta°$, the following relationship is satisfied:

$28.8mm < Z\gamma+Z\beta+\Delta P/2 < 35.2mm$

where $Z\gamma = WD\times\sin\theta\times\tan\gamma$,

$Z\beta = WD\times\cos\theta\times\tan(\beta-\beta/m)$,

$\Delta P=2\{WD\times\cos\theta\times\tan(\beta(Z)/m)+25\times\tan\beta(Z)\}$,

WD represents an object distance (mm),

m represents an magnification of each magnifying glass, and

$\beta(Z)$ represents 1/2 of an angle of convergence.

9. (Previously Presented) Binocular magnifying glasses, comprising:

a pair of magnifying glasses, one for each of a right and a left eye,

each of said pair of magnifying glasses comprising:

a magnifying optical system that has an objective lens with a positive power and an eyepiece with a positive power; and

a deflector that deflects an optical path of said magnifying optical system , said deflector located between said objective lens and said eyepiece,

wherein said deflector includes first, second, third and fourth reflective surfaces, light incident on said deflector from said objective lens being reflected by said first, second, third and fourth reflective surfaces in order of said first, second, third and fourth

reflective surfaces to direct the incident light to said eyepiece and to form an erect image,

wherein, when an angle, formed between an intersection line of said second and third reflective surfaces and a plane with which an intersection line of said first and fourth reflective surfaces perpendicularly intersects, is represented by an angle ψ which does not take a value of zero, and where γ-rotation is rotation about each of axes X_L and X_R, which respectively correspond to visual axes of left and right eyes when an object distance is infinite in a condition of a primary position, and β-rotation is rotation about each of axis Y_L and Y_R, which are respectively perpendicular to the axes X_L and X_R and are also perpendicular to a z-axis which perpendicularly intersects with the axis X_L at a position of said deflector for the left eye and with the axis X_R at a position of said deflector for the right eye, if an angle of the γ-rotation and an angle of the β-rotation are respectively represented by $\gamma(°)$ and β (°) with respect to a condition in which optical axes of said objective lenses for the right and left eyes are parallel with each other, said binocular magnifying glasses satisfies the following relationship:

$-0.5° < 2\psi-\{\varepsilon(\gamma)+\varepsilon(\beta)\} < 0.5°$

where $\varepsilon(\gamma)=\gamma-\cos^{-1}\{1-\sin^2(90-\theta)\times(1-\cos\gamma)\}$,

$\varepsilon(\beta)=\cos^{-1}\{1-\sin^2\theta\times(1-\cos\beta)\}$, and

θ represents a deflection angle (unit: degree) that said deflector deflects the optical path.

10. (Previously Presented) The binocular magnifying glasses according to claim 9,

wherein the angle β of the β-rotation satisfies the following relationship:

$0.9\times|\xi|-0.3 < |31.3\times\tan\beta| < 1.3\times|\xi|+1$

where ξ represents diopter (D) of said magnifying optical system.

11. (Previously Presented) The binocular magnifying glasses according to claim 9,

wherein said deflector has a first deflecting part in which said first and fourth reflective surfaces are integrally provided, and a second deflecting part in which said second and third reflective surfaces are integrally provided,

wherein the angle ψ is formed by rotating the first deflecting part relative to the second deflecting part.

12. (Original) The binocular magnifying glasses according to claim 9, wherein said first, second, third and fourth reflective surfaces are mirrors, respectively.

13. (Original) The binocular magnifying glasses according to claim 9, wherein said deflector includes a prism having inner surfaces respectively functioning as said first, second, third and fourth reflective surfaces.

14. (Previously Presented) The binocular magnifying glasses according to claim 13, wherein the prism is configured as a roof prism with said second and third reflective surfaces comprising a roof surface of the roof prism.

15. (Previously Presented) An adjustment method for binocular magnifying glasses having a pair of magnifying glasses for right and left eyes, each of the pair of magnifying glasses having a magnifying optical system and a deflector deflecting an optical path of the magnifying optical system, the magnifying optical system including an objective lens with a positive power and an eyepiece with a positive power, the deflector being located between the objective lens and the eyepiece,

the deflector including a first, second, third and fourth reflective surfaces, light incident on said deflector from said objective lens being reflected by the first, second, third and fourth reflective surfaces in order of the first, second, third and fourth reflective surfaces to direct the incident light to the eyepiece and to form an erect image,

where an angle, formed between an intersection line of the second and third reflective surfaces and a plane with which an intersection line of the first and fourth reflective surfaces perpendicularly intersects, is represented by an angle ψ which does not take a value of zero, where γ-rotation is rotation about each of axes X_L and X_R, which respectively correspond to visual axes of left and right eyes when an object distance is infinite in a condition of a primary position, and β-rotation is rotation about each of axis Y_L and Y_R, which are respectively perpendicular to the axes X_L and X_R and are also perpendicular to a z-axis which perpendicularly intersects with the axis X_L at a position of said deflector for the left eye and the axis X_R at a position of said deflector for the right eye, and where an angle of the γ-rotation and an angle of the β-rotation are respectively represented by $\gamma(°)$ and β (°) with respect to a condition in which optical axes of the objective lenses for the right and left eyes are parallel with each other, the adjustment method comprising:

rotating the pair of magnifying glasses in directions opposite to each other using the β-rotation to match optical axes thereof to visual axes of the eyes;

rotating the pair of magnifying glasses in directions opposite to each other using γ-rotation to adjust convergence; and

correcting inclination of an image by determining the angle ψ,

wherein the following relationship is satisfied:

$-0.5° < 2\psi-\{\varepsilon(\gamma)+\varepsilon(\beta)\} < 0.5°$

where $\varepsilon(\gamma)=\gamma-\cos^{-1}\{1-\sin^2(90-\theta)\times(1-\cos\gamma)\}$,

$\varepsilon(\beta)=\cos^{-1}\{1-\sin^2\theta\times(1-\cos\beta)\}$, and

θ represents a deflection angle (unit: degree) that the deflector deflects the optical path.

16. (Previously Presented) The adjustment method according to claim 15, wherein the angle β of the β-rotation satisfies the following relationship:

$0.9\times|\xi|-0.3 < |31.3\times\tan\beta| < 1.3\times|\xi|+1$

where ξ represents diopter (D) of the magnifying optical system.

17. (Previously Presented) The adjustment method according to claim 15, wherein the deflector has a first deflecting part in which the first and fourth reflective surfaces are integrally provided, and a second deflecting part in which the second and third reflective surfaces are integrally provided,

wherein the angle ψ is formed by rotating the first deflecting part relative to the second deflecting part before the first and second deflecting parts are secured to each other.

18. (Previously Presented) The adjustment method according to claim 15, wherein the first, second, third and fourth reflective surfaces are mirrors, respectively.

19. (Previously Presented) The adjustment method according to claim 15, wherein the deflector includes a prism having inner surfaces respectively functioning as the first, second, third and fourth reflective surfaces.

20. (Previously Presented) The adjustment method according to claim 19, wherein the prism is configured as a roof prism, the second and third reflective surfaces comprising the roof surface of the roof prism.

21. (Canceled)

22. (New) An adjustment method for binocular magnifying glasses having a pair of magnifying glasses for right and left eyes, each of the pair of magnifying glasses having a magnifying optical system and a deflector deflecting an optical path of the magnifying optical system, the adjustment method comprising:

rotating the pair of magnifying glasses in directions opposite to each other using γ-rotation; and

correcting inclination of an image, caused by the γ-rotation, by rotating the pair of magnifying glasses in directions opposite to each other using β-rotation,

where γ-rotation is rotation about each of axes X_L and X_R, which respectively correspond to visual axes of the left and right eyes when an object distance is infinite in a condition of a primary position, and where β-rotation is rotation about each of axis Y_L and Y_R, which are respectively perpendicular to the axes X_L and X_R and are also perpendicular to a z-axis which perpendicularly intersects with the axis X_L at a position of the deflector for the left eye and the axis X_R at a position of the deflector for the right eye,

wherein, when an angle of the γ-rotation for each of the right and left eyes is represented by $\gamma°$, and an angle of the β-rotation for each of the right and left eyes is represented by $\beta°$, and wherein the following relationship is satisfied:

$-0.50° < \varepsilon(\gamma)+\varepsilon(\beta) < 0.50°$

where $\varepsilon(\gamma)=\gamma-\cos^{-1}\{1-\sin^2(90-\theta)\times(1-\cos\gamma)\}$,

$\varepsilon(\beta)=\cos^{-1}\{1-\sin^2\theta\times(1-\cos\beta)\}$, and

θ is a deflection angle (unit: degree) that the deflector deflects the optical path, except in a case where $\varepsilon(\gamma)=\varepsilon(\beta)=0$.

23. (New) An adjustment method for binocular magnifying glasses having a pair of magnifying glasses for right and left eyes, each of the pair of magnifying glasses having a magnifying optical system and a deflector deflecting an optical path of the magnifying optical system, the adjustment method comprising:

rotating the pair of magnifying glasses in directions opposite to each other using γ-rotation; and

correcting inclination of an image, caused by the γ-rotation, by rotating the pair of magnifying glasses in directions opposite to each other using β-rotation,

where γ-rotation is rotation about each of axes X_L and X_R, which respectively correspond to visual axes of the left and right eyes when an object distance is infinite in a condition of a primary position, and where β-rotation is rotation about each of axis Y_L and Y_R, which are respectively perpendicular to the axes X_L and X_R and are also perpendicular to a z-axis which perpendicularly intersects with the axis X_L at a position of the deflector for the left eye and the axis X_R at a position of the deflector for the right eye,

wherein, when an angle of the γ-rotation for each of the right and left eyes is represented by $\gamma°$, and an angle of the β-rotation for each of the right and left eyes is represented by $\beta°$, the following relationship is satisfied:

$-0.33° < \varepsilon(\gamma)+\varepsilon(\beta) < 0.33°$

where $\varepsilon(\gamma)=\gamma-\cos^{-1}\{1-\sin^2(90-\theta)\times(1-\cos\gamma)\}$,

$\varepsilon(\beta)=\cos^{-1}\{1-\sin^2\theta\times(1-\cos\beta)\}$, and

θ is a deflection angle (unit: degree) that the deflector deflects the optical path, except in a case where $\varepsilon(\gamma)=\varepsilon(\beta)=0$.

24. (New) An adjustment method for binocular magnifying glasses having a pair of magnifying glasses for right and left eyes, each of the pair of magnifying glasses having a magnifying optical system and a deflector deflecting an optical path of the magnifying optical system, the adjustment method comprising:

rotating the pair of magnifying glasses in directions opposite to each other using γ-rotation; and

correcting inclination of an image, caused by the γ-rotation, by rotating the pair of magnifying glasses in directions opposite to each other using β-rotation,

where γ-rotation is rotation about each of axes X_L and X_R, which respectively correspond to visual axes of the left and right eyes when an object distance is infinite in a condition of a primary position, and where β-rotation is rotation about each of axis Y_L and Y_R, which are respectively perpendicular to the axes X_L and X_R and are also perpendicular to a z-axis which perpendicularly intersects with the axis X_L at a position of the deflector for the left eye and the axis X_R at a position of the deflector for the right eye,

wherein, when an angle of the γ-rotation for each of the right and left eyes is represented by $\gamma°$, and an angle of the β-rotation for each of the right and left eyes is represented by $\beta°$, the following relationship is satisfied:

$28.8\text{mm} < Z\gamma+Z\beta+\Delta P/2 < 35.2\text{mm}$

where $Z\gamma = WD\times\sin\theta\times\tan\gamma$,

$Z\beta = WD\times\cos\theta\times\tan(\beta-\beta/m)$,

$\Delta P=2\{WD\times\cos\theta\times\tan(\beta(Z)/m)+25\times\tan\beta(Z)\}$,

WD represents an object distance (mm),

m represents an magnification of each magnifying glass, and

$\beta(Z)$ represents 1/2 of an angle of convergence.

25. (New) Binocular magnifying glasses comprising:

a pair of magnifying glasses, one for each of a right and a left eye,

each of said pair of magnifying glasses comprising:

a magnifying optical system; and

a deflector that deflects an optical path of said magnifying optical system,

wherein the binocular magnifying glasses are configured for adjustment by:

rotating the pair of magnifying glasses in directions opposite to each other using γ-rotation; and

correcting inclination of an image, caused by the γ-rotation, by rotating the pair of magnifying glasses in directions opposite to each other using β-rotation,

where γ-rotation is rotation about each of axes X_L and X_R, which respectively correspond to visual axes of the left and right eyes when an object distance is infinite in a condition of a primary position, and β-rotation is rotation about each of axis Y_L and Y_R, which are respectively perpendicular to the axes X_L and X_R and are also perpendicular to a z-axis which perpendicularly intersects with the axis X_L at a position of the deflector for the left eye and with the axis X_R at a position of the deflector for the right eye,

wherein, when an angle of the γ-rotation for each of the right and left eyes is represented by $\gamma°$, and an angle of the β-rotation for each of the right and left eyes is represented by $\beta°$, the following relationship is satisfied:

$-0.50° < \varepsilon(\gamma)+\varepsilon(\beta) < 0.50°$

Where $\varepsilon(\gamma)=\gamma-\cos^{-1}\{1-\sin^2(90-\theta)\times(1-\cos\gamma)\}$,

$\varepsilon(\beta)=\cos^{-1}\{1-\sin^2\theta\times(1-\cos\beta)\}$, and

θ is a deflection angle (unit: degree) that the deflector deflects the optical path, except in a case where $\varepsilon(\gamma)=\varepsilon(\beta)=0$.

26. (New) Binocular magnifying glasses comprising:

a pair of magnifying glasses, one for each of a right and a left eye,

each of said pair of magnifying glasses comprising:

a magnifying optical system; and

a deflector that deflects an optical path of said magnifying optical system,

wherein the binocular magnifying glasses are configured for adjustment by:

rotating the pair of magnifying glasses in directions opposite to each other using γ-rotation; and

correcting inclination of an image, caused by the γ-rotation, by rotating the pair of magnifying glasses in directions opposite to each other using β-rotation,

where γ-rotation is rotation about each of axes X_L and X_R, which respectively correspond to visual axes of the left and right eyes when an object distance is infinite in a condition of a primary position, and β-rotation is rotation about each of axis Y_L and Y_R, which are respectively perpendicular to the axes X_L and X_R and are also perpendicular

to a z-axis which perpendicularly intersects with the axis X_L at a position of the deflector for the left eye and with the axis X_R at a position of the deflector for the right eye,

wherein, when an angle of the γ-rotation for each of the right and left eyes is represented by $\gamma°$, and an angle of the β-rotation for each of the right and left eyes is represented by $\beta°$, the following relationship is satisfied:

$-0.33° < \varepsilon(\gamma)+\varepsilon(\beta) < 0.33°$

where $\varepsilon(\gamma)=\gamma-\cos^{-1}\{1-\sin^2(90-\theta)\times(1-\cos\gamma)\}$,

$\varepsilon(\beta)=\cos^{-1}\{1-\sin^2\theta\times(1-\cos\beta)\}$, and

θ is a deflection angle (unit: degree) that the deflector deflects the optical path, except in a case where $\varepsilon(\gamma)=\varepsilon(\beta)=0$.

27. (New) Binocular magnifying glasses comprising:

a pair of magnifying glasses, one for each of a right and a left eye,

each of said pair of magnifying glasses comprising:

a magnifying optical system; and

a deflector that deflects an optical path of said magnifying optical system,

wherein the binocular magnifying glasses are configured for adjustment by:

rotating the pair of magnifying glasses in directions opposite to each other using γ-rotation; and

correcting inclination of an image, caused by the γ-rotation, by rotating the pair of magnifying glasses in directions opposite to each other using β-rotation,

where γ-rotation is rotation about each of axes X_L and X_R, which respectively correspond to visual axes of the left and right eyes when an object distance is infinite in a condition of a primary position, and β-rotation is rotation about each of axis Y_L and Y_R,

which are respectively perpendicular to the axes X_L and X_R and are also perpendicular to a z-axis which perpendicularly intersects with the axis X_L at a position of the deflector for the left eye and with the axis X_R at a position of the deflector for the right eye.

wherein when an angle of the γ-rotation for each of the right and left eyes is represented by $\gamma°$, and an angle of the β-rotation for each of the right and left eyes is represented by $\beta°$, the following relationship is satisfied:

$28.8mm < Z\gamma+Z\beta+\Delta P/2 < 35.2mm$

where $Z\gamma = WD \times \sin\theta \times \tan\gamma$,

$Z\beta = WD \times \cos\theta \times \tan(\beta-\beta/m)$,

$\Delta P=2\{WD \times \cos\theta \times \tan(\beta(Z)/m)+25 \times \tan\beta(Z)\}$,

WD represents an object distance (mm),

m represents an magnification of each magnifying glass, and

$\beta(Z)$ represents 1/2 of an angle of convergence.